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DePaul University
College of Education

**THE SOCIAL CONTEXT OF URBAN SCHOOL REFORM:
COLLECTIVE EFFICACY AND STUDENT ACHIEVEMENT**

A Dissertation in Education
with a Concentration in Curriculum Studies

by

Carla E. Ellis

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Submitted in Partial Fulfillment
of the Requirements
for the Degree of

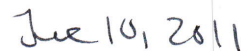
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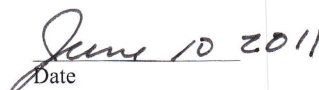
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ABSTRACT

The purpose of this correlational study was to determine if between-school variance in school-level student achievement is related to collective teacher efficacy in 10 urban elementary schools in Chicago. It also examined the effects of teacher leaders' implementation of a School-University partnership and the leadership characteristics of principals on school collective efficacy.

Collective teacher efficacy was measured using Goddard's (1998) 6-point 21-item Likert Collective Teacher Efficacy scale. There were 280 teachers and 53 teacher leaders who completed the scale. The Collective Teacher Efficacy scale results were analyzed and examined in relationship to school-level Iowa Test of Basic Skills (ITBS) test scores.

Descriptive statistics included correlations between the long and short forms of the Collective Teacher Efficacy scale, between collective efficacy of teachers and teacher leaders, between the measures of teacher leaders' participation and measures of school leadership. All inferential statistics were computed using two-tailed tests and a significance level of .05 (i.e. $\alpha = .05$). However, given the small sample size ($N=10$ schools), relationships that are statistically significant at the .10 α level were also interpreted but increasing the level of significance from $\alpha = .05$ to .10 α decreases the reliability of the results.

The study results show that due to the sample size none of the correlations is statistically significant between collective teacher efficacy measures and school-level achievement however teacher leaders' participation in Saturday professional development workshops and collective

efficacy and leadership characteristics of program coherence and teacher/principal trust and collective efficacy was statistically significant. This finding suggests that with a larger sample size collective teacher efficacy and school-level achievement will be correlated through teacher leaders' participation in a School-University partnership and principal leadership characteristics.

The theoretical basis for this study is Bandura's social cognitive theory which defines human behavior in terms of continuous reciprocal interaction between cognitive, behavioral and environmental influences. This study offers evidence supporting a relationship between teacher leadership and principal leadership on collective efficacy which has been found in other studies to have a strong relationship to school-level student achievement.

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Chapter I. Introduction

Media headlines across the United States feature public education issues on a continual basis. The nation continues to be confronted with the challenge of transforming schools into more effective organizations. The January 2010 U.S. News and World Report is devoted to school reform issues and the question of whether school reform will fail. This question reflects on the controversial legislation No Child Left Behind (NCLB) Act of 2002 and the current presidential administration's Race to the Top initiative.

The 2002 NCLB Act represents changes to the 1965 Elementary and Secondary Education Act. NCLB is a nationwide effort to provide a high quality of public education to all students. The law seeks to develop an educational system that is more accountable through the creation of structures and systems for states, districts, and schools. These structures aspire to assure that a fair and equitable education is provided to students in the country's public school systems. President Obama's administration's initiative, Race to the Top, seeks to add rigor to what students should know and be able to do, compensate teachers for student achievement, and replace failing schools with schools that have more autonomy.

Schools are multidimensional organizations that are influenced by many internal and external factors such as school leadership, community and public involvement, policy-making including accountability structures such as NCLB, and the use of high stakes testing as a measure of student achievement and school effectiveness. These factors exemplify the social context of schools and their development, at which, teachers have been centrally positioned. The importance of teachers in the school development process warrants inquiry into how this issue of change impacts teachers' beliefs about their tasks and levels of competence and how their beliefs relate to the collective effectiveness of schools.

“Teaching is typically performed in a group context” (Tshannen-Moran, Hoy & Hoy, 1998, p. 241). Teachers work communally—by grades and subject areas, within physical domains, and according to perceived self- and collective-efficacy within the school’s social system.

Teachers, like members of most organizations, shape their beliefs and actions largely in conformance with the structures, policies and traditions of the workday world around them and where teachers collectively perceive students as capable learners, and themselves as capable teachers seem more likely to persevere and foster students’ academic gains. (Rosenholtz, 1989, p. 2)

The Social Context of Chicago Public Schools

The Chicago Public Schools (CPS) is the third largest system in the United States with over 600 schools, more than 23,000 teachers educating in excess of 400,000 pre-school through secondary students. As a result of a 1986 Illinois law paving the way for charter schools, there are 71 public charter schools. There are 592 principals and the system’s annual operating budget is \$5.328 billion from local, state, and federal sources. During the Fiscal Year of 2010 the total student population, 85% are low income and 86% of the students are minorities: African-American (45%) and Latino (41%).

During fiscal year 2002, the same year as NCLB was signed into law, there were 46 elementary schools and 30 high schools on academic probation due to low student achievement. Less than 25% of students are at or above national norms on standardized tests in reading and mathematics. African-American students made up half of the students in the system. Latino students were the second largest group of students representing just over thirty-six percent of the student population. The remaining student enrollment was comprised of White, Asian/Pacific

Islander and Native American students at nine, three, and one twentieth of a percent, respectively. More than three-quarters (85.3%) of students were classified as coming from low-income families. The percent of limited English proficient students in the system was 14.3. Average student to teacher ratio was 23 to one. This picture of Chicago Public Schools is little different than the picture in the 1980s which is largely viewed as the beginning of the modern educational reform movement.

From the late 1980s to present, as a result of the educational reform movement, the beliefs of teachers in CPS have been influenced by a series of internal and external factors such as shifts in school control, the involvement of parents and communities in the school decision-making process, external partners, teacher shortages, and high stakes testing. With these challenges in view, how do individual teachers in CPS view their school's collective ability to impact student achievement? At the time of NCLB, the educational reform effort in Chicago was characterized as "a movement that is in its third phase" (Bryk, Consortium on Chicago School Research, AERA Conference, 2003, personal communication):

Phase 1, from 1988 to 1995, is distinguished by the institution of Local School Councils (LSCs), which sought to give a voice to parents and members of the school community. Beginning in 1995, Phase II is noted for mayoral takeover and control with the appointment of a CEO that resulted in a system with strict accountability measures. It is in this phase that the use of high-stakes testing was instituted. This current phase, which began in 2001 with a newly appointed CEO, is known for its focus on professional development and instructional improvement.

In 1988, the beginning of Phase I, Public Act 85-1418 sought to stimulate school change in CPS. This act established Local School Councils (LSCs) comprised of elected parents,

community members and one student at the high school level, teachers and the principal. This body is responsible for evaluating, hiring and firing the principal, assisting in the development and approval of the budget, and monitoring implementation of school improvement. Bryk, Sebring, Kerbow, Rollow, & Easton (1998) state that the act “deliberately sought to weaken centralized bureaucratic control and replace it with a complex local school politics” (p. 21). In addition to the increased role of parents and the community, this act increased principal authority, expanded the influence of teachers, and provided additional resources for school improvement.

A school policy designed to improve student achievement was implemented in 1996 during Phase II. This school probation policy was central to the system’s accountability system. “Schools “on probation” were subject to decreased autonomy and the threat of more severe sanctions. At the same time, probation schools receive direct assistance such as support from external partners” (Finnigan & O’Day, 2003, p. 5).

Phase III, can be noted for its implementation of a system-wide reading initiative and professional development and consolidation and reorganization of administrative offices in an effort to provide school support. This phase has been challenged with the implementation of the NCLB act due to the heavy emphasis placed on standardized assessment of reading and math. Today all phases of these reform efforts continue in many forms. One of the reforms that continues in CPS is an initiative to “turnaround” schools by closing down failing schools and reopening schools with new leadership, teachers and curriculum and added resources. Another effort is the reorganization of clusters of schools to help foster collaboration. All of these phases are ambitious efforts to transform school leaders, teachers, parents and communities, and students to result in schools that are more effective organizations. However, the undertaking of

creating environments contributing to learning rests heavily on the efforts and self-efficacy of teachers. “Teachers’ perceived self-efficacy effect the quality of instructional transactions and rate of academic progress in individual classrooms” (Bandura, 1993, p. 141): yet teachers operate within a collective environment. Bandura (1993) recognizes that “the belief systems of staffs create school cultures that can have vitalizing or demoralizing effects on how well schools function as a social system” (p. 141). He classifies schools as organizations with an intermediate level of interdependence and further explains that, “although the level of academic progress achieved by a school largely reflects the summed contributions of teachers in their individual classrooms, schools involve organizational interdependencies that contribute to teachers’ collective sense of efficacy” (p. 141). The ability for groups to attain goals, in this case, the school and student achievement, is not only based on shared goals but on the intentional, coordinated and synergistic interactions of its members.

Teacher and Collective Teacher Efficacy

Bandura (1997) identified two types of efficacy—perceived personal and perceived collective. Historically, individual teacher efficacy, “the extent to which teachers believe their efforts will have a positive effect on student achievement” (Ross, 1994, p. 3), when aggregated, represented the measure of organizational efficacy but Bandura (1993) recognized that the types are related yet different and therefore, require independent approaches to measurement in order to achieve an accurate sense of collective teacher effectiveness, which is “the average perception of teachers in a school that the efforts of faculty will have a positive effect on student achievement” (Goddard, 1998, p. 6). The development of the collective construct is based on social cognitive theory (1977, 1986, 1997), which is particularly concerned with three types of human agency—personal, proxy and collective. “The core features of agency enable people to

play a part in their self-development, adaptation, and self-renewal in changing times” (Bandura, 2001, p. 2).

Goddard (1998) and Goddard, Hoy, & Hoy (2000) in their studies developed a reliable (.96) and valid six-point 21-item Likert-type scale measuring a school’s level of collective teacher efficacy in which, individual teachers are asked to respond to questions about their schools’ collective effectiveness. As predicted by Goddard in his study, collective teacher efficacy is significantly and positively associated with between-school differences in mathematics (.459) and reading (.531) student achievement. Goddard and Goddard (2001) analyzed the relationship between teacher efficacy and collective efficacy and confirmed that the constructs are different but that a positive relationship exists between teacher and collective efficacy (p. 17). Teacher efficacy is a predictor of between-school variance of collective efficacy and this relationship is found in its converse.

In social systems, people are producers and products. A key ingredient in a school’s social system is teachers’ shared belief in their collective power to increase student achievement. Bandura (2001) states “many of the things they (teachers) seek are achievable only through socially interdependent effort. Hence, they have to work in coordination with others to secure what they cannot accomplish on their own” (p.12).

Research Objectives

The purpose of this study is to determine the effects of collective teacher efficacy on school-level student achievement in urban elementary schools in Chicago. This study is based on Albert Bandura’s social cognitive theory (1977, 1986, 1997) and his constructs of perceived self-efficacy and collective-efficacy. Self-efficacy is defined as “beliefs in one’s capabilities to organize and execute the courses of action required to produce attainments” (Bandura, 1997, p.

3). Historically, self-efficacy is used in research as the basis for analyzing efficacy of the collective in organizations because perceived efficacy determines the actions a person will take and “most occupational activities are performed in concert with others rather than independently” (Bandura, 1997, p. 423).

Bandura (1993, 1997) suggests that, when aggregated, perceived self-efficacy represents an emergent organizational characteristic called collective efficacy. “Beliefs of personal efficacy are not detached from the larger social system” (p. 478). “Collective efficacy is concerned with the performance capability of a social system as a whole” (p. 469). This study examines collective teacher efficacy as an organizational construct that impacts school-level student achievement by analyzing data from ten urban public schools ranging from kindergarten through eighth grade in partnership with the same university-based external partner during the 2001-2002 academic year. Through the partnership all ten schools implemented a school development process which emphasized in-school capacity building through professional development, collaboration, curriculum development, and coaching.

Specifically, this correlational study seeks to determine if between-school variance in school-level student achievement is related to collective teacher efficacy and to what extent. School-level student achievement is measured by the Iowa Test of Basic Skills (ITBS) standardized combined test scores for grades three through eight in reading and mathematics, obtained from the Chicago Public Schools website. A school’s level of collective efficacy is measured using Goddard’s 1998 six-point 21-item Likert collective teacher efficacy scale and is examined in relationship to school-level ITBS test scores. In addition, there are the following related purposes of the study: (1) to determine if there is a positive relationship between collective efficacy and the degree to which teacher leaders implement the School-University

Partnership and (2) to determine if characteristics of principal leadership is positively associated with higher levels of collective efficacy.

Implementation of the school-university partnership is determined by a quantitative analysis of a school's participation in the various components of the program; attendance in weekly meetings and monthly workshops, the total time devoted to in-school workshops and on-line reporting by teacher leaders. The degree of teacher leader implementation of the partnership is examined in relationship to the school's level of collective efficacy to determine the relationship and its extent.

The Chicago Consortium of Educational Research was consulted for nonidentifiable data on school leadership by the principal. Through an annual school improvement survey, teachers responded to questions about the principal leadership process and orientation. The principal leadership construct is comprised of principal inclusive leadership, teacher-principal trust, teacher influence, joint problem solving, principal instructional leadership, and program coherence. These measures of principal leadership are examined in this study in relationship to each school's collective efficacy to determine the relationship and its extent.

Research Hypotheses

This study will investigate whether teachers' collective efficacy aggregated to the school level has a significant effect on school-level student achievement. It will also examine the effects of teacher leaders' implementation of a school development process that provides opportunities for professional development and structures for collaboration and the characteristics of the principal's leadership on school collective efficacy. The hypotheses for this study are as follows:

1. School collective efficacy has a positive effect on the differences in school-level student achievement that occur between schools.
2. Teacher leadership has a positive effect on school collective efficacy.
3. Principal leadership has a positive effect on school collective efficacy.

Significance

Goddard (1998) developed and implemented a collective efficacy scale and analyzed collective teacher efficacy in relation to student achievement and socioeconomic status which is used in this current study. The Goddard collective efficacy scale (long form) was given to teachers and analyzed at each of the 10 schools in this study. The collective efficacy score was analyzed in relation to school-level student performance, implementation of university-school partnership program, and principal leadership characteristics. This current study will contribute to the body of research on collective teacher efficacy and school development. The study focuses on the school as a social system and the potential for the collective to achieve that which individuals cannot do individually.

This study also will contribute to the body of research on how the construct of collective efficacy is related to student achievement. There are few studies on the relationship between collective efficacy and student achievement. Because the study focuses on lower performing urban elementary schools in partnership with a university-based partner, it serves as a resource for schools and urban systems across the nation. The nation's public schools continue to face organizational issues such as low student achievement as measured by standardized testing, stagnant graduation rates, and lack of public trust and investment. The study will be of particular interest to professional development efforts for teachers and schools, for principal training programs and initiatives, and for school reform movements.

Limitations

The size of the sample is the most limiting factor of this study. Only ten schools are included in the study which will make its findings difficult to generalize. Another limiting factor is the study draws its data from a non-random sample of schools. Lastly, the study measures collective efficacy only once. Bandura (1986, 1997) cited four experiences that shape self-efficacy beliefs, which are critical for individuals as well as for groups in forming their collective efficacy beliefs. Mastery experience, vicarious experience, social persuasion and affective states have different effects on organizations depending on the organization's level of efficacy. Implementing the collective efficacy survey at different times would have provided additional data on each school's level of collective efficacy.

Chapter II. Review of Literature

Collective efficacy is a construct that measures beliefs about the collective capability of members of any group to influence outcomes. This construct is used to analyze social environments such as neighborhoods, sports teams, work teams and in schools. The results of these studies recognize collective efficacy as an important factor in group success.

The Project on Human Development in Chicago Neighborhoods was an eight-year longitudinal study that surveyed 8782 residents of 343 neighborhoods. The project hypothesized that a neighborhood's collective efficacy is related to the level of crime. In the study collective efficacy refers to mutual trust among neighbors combined with willingness to intervene on behalf of the common good, specifically to supervise children and maintain public order (Sampson, Raudenbush & Earls, 1997). The basic foundation of the Chicago Neighborhoods Project is that:

Social and organizational characteristics of neighborhoods explain variations in crime rates that are not solely attributable to the aggregated demographic characteristics of individuals. We propose that the differential ability of neighborhoods to realize the common values of residents and maintain effective social controls is a major source of neighborhood variation in violence. (Sampson et al., 1997, p. 918)

The researchers found that rates of violence were lower in urban neighborhoods characterized by collective efficacy. At the neighborhood level, after social composition was controlled, collective efficacy was strongly negatively linked with violence. Collective efficacy appeared to some extent mediate widely cited relations between neighborhood social composition and violence. The model accounted for more than 75% in the variation between neighborhoods in levels of violence. "Neighborhoods differentially activate informal social control. It is for this

reason that we see an analogy between individual efficacy and neighborhood efficacy: both are activated processes that seek to achieve an intended effect” (Sampson et. al., 1997, p. 919).

Besides neighborhood studies, other studies that focus in collective efficacy are those that examine team efficacy and performance.

Hodges and Carron (1992) found that groups categorized as high collective efficacy demonstrated more persistence after failure in a group physical task. Whitney (1994) found that groups with higher efficacy accepted higher goals more readily and performed better on a nutritional assessment exercise. Feltz and Lirgg (1998) were the first to conduct a study of collective efficacy and team performance. They studied collegiate hockey teams examining the relationship between player efficacy, team efficacy and team performance. The study spanned over the course of a season with measurements for each player and team efficacy and team performance. The study found that after wins or loses, player efficacy was not affected but team efficacy significantly increased or decreased after a win or loss, respectively and that team efficacy beliefs are a stronger predictor of team performance than player self-efficacy. The study’s findings support the theory that there is a relationship between perceived collective efficacy and team performance.

In a study on the relationship between collective efficacy and work teams in manufacturing that revealed a positive relationship using repeated measures analysis of variance which indicated that higher efficacy is related to higher levels of performance. Collective efficacy was shown to differ between teams, to have shared meaning within teams, and to be related to the performance behaviors of work teams. (Little & Madigan, 1997).

The social and organizational characteristics of schools may be similar to that of neighborhoods, sports teams and work teams. Thus, collective efficacy may explain variations in

school-wide achievement. Schools like other social settings are communities where it is necessary for there to be mutual trust amongst its members and a willingness to intervene in order to maintain order resulting in the success of the school. Therefore, collective efficacy has been established as an important characteristic for the examination of school effectiveness.

Collective efficacy in the area of school improvement has been proven to be an essential characteristic for school effectiveness. Rosenholtz (1989) noted that effective schools differ dramatically from ineffective schools in that values, norms and behaviors of principals and teachers in effective schools are more closely aligned.

The hallmark of any successful organization is the shared sense among its members about what they are trying to accomplish. Agreed-upon goals and ways to attain them enhance the organization's capacity for rational planning and action. Schools are unique among organizations in lacking common goals and that the goals of teaching were multiple, shifting and frequently disputed. (Rosenholtz, 1991, p. 13)

All of these studies examine human behavior and highlight Bandura's social learning theory (1977) which defines human behavior in terms of continuous reciprocal interaction between cognitive, behavioral and environmental influences. Social cognitive theory (Bandura, 1986, 1997) postulates that "the control individuals and collectives exert over their lives is influenced by their perceptions of efficacy" (Goddard, 2000, p. 3). The construct of collective teacher efficacy is an outgrowth of self-efficacy and teacher self-efficacy.

The examination of the role of efficacy in education is more than three decades old (Bandura, 1977). Efficacy research has made a progression from self-efficacy to teacher self-efficacy and now to the development of collective teacher efficacy. Historically, there are two lines of research most relevant to this study: research grounded in Rotter's (1966) theory on

social learning used as the theoretical base for teacher efficacy research. The second line is self-efficacy based on Bandura's (1977) social learning theory.

Rotter (1966) focuses on internal and external locus of control and is concerned with causal beliefs about the relationship between actions and outcomes. "It is hypothesized that this variable (locus of control) is of major significance in understanding the nature of the learning process in different kinds of learning situations" (p. 1). Rotter's theory on learning is later used by the RAND organization in 1976 as a theoretical base for defining teacher efficacy. Teacher efficacy has been defined as "the extent to which the teacher believes that they could control the reinforcement of their actions, that is, whether control of reinforcement lay within themselves or in the environment" (Tschannen-Moran, Hoy, & Hoy, 1998, p. 202). Rotter's theory differs from Bandura's theory.

Social cognitive theory assumes that humans are active shapers of their lives. Bandura defines self-efficacy as "a cognitive process in which people construct beliefs about their capacity to perform at a given level of attainment" (Tschannen-Moran, Hoy, & Hoy, 1998, p. 229). "Social cognitive theory specifies that efficacy beliefs are developed through individual cognitive processing that uniquely weighs the influence of efficacy-shaping information obtained through mastery experience, vicarious experience, social persuasion, and affective states" (Bandura, 1997). The role of cognitive processing in the interpretation of efficacy information is pivotal—the same experiences may lead to different efficacy beliefs in different individuals, depending on individuals' interpretations (Bandura, 1993, 1997).

Bandura (1997) clarifies the difference between Rotter's (1966) social learning theory and his cognitive learning theory. He states:

Perceived self-efficacy and locus of control are sometimes mistakenly viewed as essentially the same phenomenon measured at different levels of generality. In point of fact, they represent entirely different phenomena. Beliefs about whether one can produce certain actions (*perceived self-efficacy*) cannot, by any stretch of the imagination, be considered the same as beliefs about whether actions affect outcomes (*locus of control*). (Bandura, 1997, p. 20)

Out of this theory grew the identification of teacher efficacy as a type of self-efficacy (Bandura, 1977). Teacher efficacy has been defined as “the extent to which the teacher believes that the teacher could control the reinforcement of their actions, that is, whether control of reinforcement lay within the teachers or in the environment” (Tschannen-Moran et al, 1998, p. 202).

Teacher efficacy. The purpose and tools used to measure efficacy in education have been developed over time. There are several measures of teacher efficacy. Tschannen-Moran et al (1998) outlined in a table the measures of efficacy based on Rotter’s concept of generalized expectancies of reinforcement and Bandura’s concept of self-efficacy. Table 1 is adapted from the 1998 table with the addition of the instrument and structure used by Goddard (1998) and Goddard et al. (2000). Prior to Goddard (1998), individual teacher beliefs to promote academic learning in their own classroom are aggregated to a given school as a way of evaluating how collective efficacy affects organizational performance. Another approach to measuring collective efficacy and the impact at the organizational level is to identify teachers’ beliefs in their schools’ capability as a whole (Bandura, 1993), which Goddard (1998) developed and tested.

Goddard states that “over the past 20 years, researchers have established strong connections between teacher efficacy and teacher behaviors that foster student achievement” (Allinder, 1994; Ashton & Webb, 1986; Gibson & Dembo, 1984; Meijer & Foster, 1988;

Woolfolk & Hoy, 1990). Bandura (1977) identified teacher efficacy as a type of self-efficacy—the outcome of a cognitive process in which people construct beliefs about their capacity to perform at a given level of competence. Goddard (1998) also stated that “teacher efficacy is context specific—teachers’ level of efficacy may change and that’s why teacher efficacy must be judged in light of teaching task and teaching context” (p. 63).

Table 1 *Historical Measures of Teacher Efficacy**Measures based on Rotter's Social Cognitive Theory*

Instrument	Structure
RAND (Armor et al., 1976)	2 items on a 5-point Likert scale. Scoring sum of the 2 item scores
Teacher Locus of Control (Rose and Medway, 1981)	28 items with a forced-choice format. Half of the items describe situation of student success and half describe student failure
Responsibility for Student Achievement (Guskey, 1981)	Participants are asked to give a weight or percentage to each of 2 choices. Global measure of responsibility with 2 subscales for responsibility of student success and failure
Webb Efficacy Scale. (Ashton et al., 1982)	7 items forced choice.

Measures based on Bandura's Cognitive Learning Theory

Instrument	Structure
Teacher Efficacy Scale (Gibson and Dembo, 1984)	30 items on Likert scale. Global measure of teacher efficacy based on sum of all items. Two factors: personal efficacy and general teaching efficacy
Science Teaching Efficacy Belief Instrument (Riggs and Enochs, 1990)	25 items on Likert scale
Ashton Vignettes (Ashton et al., 1982)	50 items describing problem situations concerning various dimensions of teaching. Norm referenced
Bandura's Teacher Efficacy Scale	30 items on 9 point-scale
Teacher Efficacy Model (Tschannen-Moran, Hoy, and Hoy, 1998)	Teacher efficacy must assess both personal competence and an analysis of the task in terms of the resources and constraints in particular teaching contexts.
Goddard's Collective Teacher Efficacy Scale	21 and 15 item scale. 2 factors: group competence and task analysis

Collective efficacy. Bandura (1997) defines collective efficacy as “people’s shared beliefs that they can work together to produce effects” (p. 464). He states “belief of collective efficacy affects the sense of mission and purpose of a system, the strength of the common commitment to what it seeks to achieve, how well its members work together to produce results, and the group’s resiliency in the face of difficulties” (p. 469). Building on Bandura’s definition and applying the construct to teachers, Goddard et al.(2000) state that “collective teacher

efficacy is a construct measuring teachers' beliefs about the collective capability of a faculty to influence student achievement; it refers to the perceptions of teacher that the efforts of the faculty of a school will have a positive effect on student achievement" (p. 486). Collective efficacy depends on the reciprocal action of the given task and the context in which the task will take place (Goddard, 2001).

Bandura (1997) states that educational systems are strewn with conditions that can easily erode teachers' sense of efficacy and occupational satisfaction (p. 244). The things that make schools effective typically include strong academic leadership by principal, high academic standards with firm belief in student's capabilities to fulfill them, mastery-oriented instruction that enables students to exercise control over their academic performances, good management of classroom behavior conducive to learning, and parental support and involvement in their children's schooling (p. 244).

Student achievement. Bandura (1997) states that "in low achieving schools, teachers spend less time on academic instruction and more time as disciplinarians trying to maintain order in the classroom" (p. 241). Armor, Controy-Oseguera, Cox, King, McDonnell, Pascal, Pauly & Zellman (1976) conducted an analysis of school preferred reading programs in schools in Los Angeles with 80% non-white students (Black and Mexican) in 20 schools in 78 classrooms and found that the more efficacious the teachers felt, the more their students advanced in reading achievement. Teacher attitudes are more significant than their background characteristics. The most effective teachers had a strong sense of personal efficacy in teaching minority children; they believe they could get through. The results of the study are relevant due to the correlation between teacher self-efficacy and collective efficacy (Goddard & Goddard 2001).

Standardized tests for accountability. Test scores in Chicago are used as the measure of student achievement in its public schools. In turn, schools are labeled and categorized based on these scores and viewed in relation to the attainment of other schools. When lower achieving schools are compared to higher achieving schools do they believe they can manage the task at hand? Goddard et al. (2000) found that “collective efficacy reflects perceptions of group competence relative to the task at hand” (p. 489). Bandura (1993) observes that “many teachers find themselves beleaguered day in and day out by disruptive and non-achieving students. When teachers are in this situation they lack a secure sense of instructional efficacy, show weak commitment to teaching and spend less time on academic matters” (p. 134). However, Goddard et al. (2000) argue “because collective efficacy beliefs shape the normative environment of a school, they have strong influence over teacher behavior and consequently student achievement” (p. 497). These influences can be shaped by internal and external factors. “Collaboration between schools and universities is between equal partners working together to meet self-interests while solving common problems” (Gilles & Cramer, 2003, p. 2).

School-University partnerships. The university-based process in this study was selected by individual public schools for implementation as part of Chicago’s school improvement efforts. The process focuses on collaboration between the school and the university as a means for building school capacity. This collaboration is developed through professional development, curriculum implementation, and teacher-to-teacher connections.

Selke’s (1996) analysis of school-university partnerships defines collaboration as “a cooperative undertaking between two or more parties and typically involves coordinating actions and sharing resources to achieve similar goals” (p. 12). Her study recognizes the possibility of five potential outcomes for school-university partnerships: collaboration, compromise,

competition, accommodation, or withdrawal from the partnership. The findings in her study indicate that the participating elementary schools have cultural settings that make it likely for them to enter into collaborative partnerships with a university. Efficacy is a component of the cultural setting conducive to collaboration. Selke (1996) observed that efficacy, “the perceived ability to contribute to the shaping of a partnership” (p. 11), will result in a collaborative relationship as opposed to one of the four other outcomes of a school-university partnership.

Gilles and Cramer (2003) observed that collaboration between schools and universities results in positive effect on the quality of teacher for both new and experienced teachers. They also noted that administrative support for the partnership is crucial. School-University partnerships are successful when principals actively support the partnership and supported teachers.

Principal leadership. Principal leadership contributes to teachers’ perceptions of their schools. Bandura (1993) states, “Strong principals excel in their ability to get their staff to work together with a strong sense of purpose and to believe in their capabilities to surmount obstacles to educational attainments” (p. 141). *School Leadership and the Bottom Line in Chicago* (Bryk, 2000), a study carried out by the Consortium on Chicago School Research, examines the key elements of principal leadership in effective schools in Chicago. The study highlights that principals in productive schools “set high standards for teaching, understand how children learn, and encourage teachers to take risks and try new methods of teaching” (p. 2). The principal who is viewed by his or her teachers as having a facilitative and inclusive leadership style encourages a sense of collective efficacy. As in the above study, Tschannen-Moran et al. (1998) state, “when a principal displayed strong leadership, encouraged innovation and was responsive to teachers’ concerns, teachers’ collective sense of efficacy was greater” (p. 222).

Additionally, Bandura (1997) states that:

In highly efficacious schools, in addition to serving as administrators, principals are educational leaders who seek ways to improve instruction. They figure out ways to work around stifling policies and regulations that impede academic innovativeness. In low-achieving schools, principals function more as administrators and disciplinarians.”

In a study of 170 teachers, increased teaching commitment by teachers was found to be related a principal whose teachers viewed them as instructional leaders, as school advocates and as having positive relationships with students and staff (Coladarci, 1992).

All of the threads of collective efficacy include teacher self-efficacy, strong school leaders and the task at hand. Effective schools are characterized by collective efficacy. Therefore the proposed study will use Bandura’s (1977, 1986, 1997) theoretical framework to examine how teachers’ perceive their collective efficacy to make change. This study uses school-level achievement and school-level collective efficacy in order to determine if there is a relationship between the two variables. This study employs a correlation research design. Collective efficacy will be correlated to student achievement as measured by the reading and mathematics scores on the Iowa Test of Basic Skills (ITBS). School data will consist of results from an end-of-year teacher survey, attendance at weekly in-school meetings and monthly Saturday inter-school workshops, frequency of in-school workshops, and on-line reporting for the 2001-2002 school year. These data will be used to determine the level of a school’s collective efficacy, the relationship between collective efficacy and the university partnership, and the correlation between school collective efficacy and student achievement.

In a time of struggling schools and communities, organizational effectiveness is important.

Schools in which the staff collectively judges themselves as powerless to get students to achieve academic success convey a group sense of academic futility that can pervade the entire life of the school. In the reverse, schools with teachers who view themselves as capable of impacting student achievement imbue their organizations with the capacity for progress. Bandura (1993, p. 141).

Chapter III. Methodology

This study examined the relationship between an elementary school's level of perceived collective teacher efficacy and school-level student achievement in 10 Chicago public elementary schools. The nature of elementary school lends itself to opportunities for school-wide collaboration because of the ease of creating opportunities for teachers to meaningfully interact during scheduled common planning periods. In addition elementary teachers are responsible for the whole curriculum and they are prepared to teach all subjects. In this current study collective teacher efficacy was assessed through a 21-item six-point Likert scale in the spring of 2002. Student achievement was measured using school-level test scores for the percentage of combined third-eighth grade students at or above national norms on the 2001 and 2002 ITBS in reading and mathematics, and then compared to measure growth in each subject. The Iowa Test of Basic Skills (ITBS) was used as the measure of school-level achievement because at the time of the study the ITBS was used as the measure for school accountability in Chicago and the Illinois Standards Achievement Test (ISAT) was not a school-wide assessment but only used at benchmark grades three, five, and eight (Easton, Correa, Luppescu, Park, Ponisciak, Rosenkranz & Sporte, 2003). In the current study prior to examining the relationship between collective efficacy and student achievement, collective school efficacy was examined in relationship to a school's involvement in and implementation of a university-based partnership program and the teachers' measurement of the principal leadership.

CPS is the third largest public school system in the United States. At the time of the study the schools in the study represented approximately two percent of the total schools in Chicago's public school system. The schools in the study represented 40 percent of the total schools in partnership with the same university. The 10 schools chosen meet the following

criteria: in partnership with the university during the 2001-2002 school year; completed the university's 2001-2002 end-of-year survey; participated in the 2001 Consortium on Chicago School Research School Improvement Survey; and had the same principal for the 2000-2001 and 2001-2002 school years.

Data gathered from a variety of sources for the study were analyzed to determine the following:

- The Level of a school's collective efficacy;
- The Relationship between collective efficacy and the university partnership;
- The Relationship between collective efficacy and school leadership and;
- The Correlation between school collective efficacy and school-level achievement.

At the time the study was conducted, the researcher had been employed by the university for over five years as an associate director of the partnership program.

Sample Selection

The school is the unit of analysis in this study. The schools selected for this study were schools that partnered with the same university during the 2001-2002 academic year. To identify the participants for this study, the researcher consulted the director of the university partnership, the Consortium on Chicago School Research, school principals, and the Chicago public schools website.

A list of schools in partnership with the university was obtained from the director of the program. The schools on that list were analyzed in terms of the other requirements. Of the total schools, 10 met all the criteria.

The schools to be selected were to have the following characteristics:

- In partnership with the university during 2001-2002 school year;

- Principal is continuing school leader in 2001-2002;
- School participated in end of year survey;
- Available ITBS test scores; and
- Data available from the Consortium on Chicago School Research.

After identifying the schools to be included in the study, the researcher sent letters to each principal outlining the purpose of the research and requested their permission to use data from the university partnership and to consult the Consortium on Chicago School Research for school-level data on principal leadership from the 2001 school improvement survey. All 10 principals consented to the use of the university data on the partnership and nine of the 10 consented to the use of the Consortium data on school improvement.

Sample Characteristics

The focus of this study was on public schools in partnership with the same university partner. Eight of the schools are kindergarten through eighth grade, one school is kindergarten through sixth and the remaining school is a middle school (sixth-eighth grades). One of the kindergarten through eighth grade schools is a year-round school and did not have a team of teacher leaders participating in Saturday professional development sessions or weekly in-school meetings.

Table 2: *Sample Characteristics of Schools*

School 1	Grade levels K-8	School Calendar Traditional	Teacher Leaders Yes
2	K-8	Traditional	Yes
3	K-8	Traditional	Yes
4	K-8	Traditional	Yes
5	K-8	Traditional	N/A
6	K-8	Year-round	Yes
7	6-8	Traditional	Yes
8	K-8	Traditional	Yes
9	K-8	Traditional	Yes
10	K-6	Traditional	Yes

Using the Chicago Public Schools Accountability Rating Scale below which is based on the level of achievement and progress on ITBS and/or ISAT, four of the schools were Probation Schools, two of the schools were Schools of Challenge, two of the schools were Schools of Opportunity, one school was a School of Merit, and the remaining school was a School of Distinction.

Table 3: Chicago Public Schools 2002 Accountability Ratings for Elementary Schools

Chicago Public Schools 2002 Accountability Ratings for Elementary Schools		
<i>Based on Level of Achievement and Progress Level</i>		
Level of Achievement	Progress Level	Overall Level of Achievement on ITBS or ISAT
Level I	Schools of Distinction and Schools of Excellence	Above 60%
Level II	Schools of Merit and Schools of Distinction	40% - 59%
Level III	Schools of Challenge	25% - 39%
Level IV	Schools on Probation	Both Below 25%

Chicago Public Schools identified four levels of achievement and used four indicators to determine a school's progress. The four indicators were (i.) ITBS School Growth; (ii.) ITBS Average Student Gain; (iii.) ISAT School Growth Index; and (iv.) Adequate Yearly Progress on ISAT. These levels and indicators were used to determine an individual school's accountability rating.

Probation Schools were schools with less than 25% of students at/or above norms on ITBS and with less than 25% of students meeting/exceeding ISAT standards. Schools of Challenge were schools between 25% and 39% at/above norms on ITBS or meeting/exceeding standards on ISAT and have a does not meet progress rating. Schools of Opportunity were schools with lower levels of achievement but meet or exceed progress levels. These schools, like Schools of Challenge, were schools between 25% and 39% at/above norms on ITBS or meeting/exceeding standards on ISAT. Schools of Merit were schools with average levels of achievement with ITBS norms between 40% and 59% at/above or ISAT standards meeting/exceeding and progress measures either meets or does not meet. The Schools of Distinction were schools that exceeded progress levels and have a high level of achievement.

These schools earned an exceeds progress rating based on their progress on the four measures and have at least 40% at/above norms on ITBS or meeting/exceeding standards on ISAT.

Reading scores on ITBS for the schools in this study in 2001 ranged from 17.2 to 44.3 percent of third-eighth grade students at or above national norms. The range for reading in 2002 was 17.3 to 45 percent. Mathematics scores on ITBS ranged from 16.2 to 47.8 in 2001 and from 14.8 to 46.1 in 2002 for third-eighth grade students combined percentage at or above national norms.

The average percentage for students from low income homes is 94% with a range from 75.2 to 100 percent reported students from low income homes. Student enrollment ranged from 278 to 789 students with an average of 510 students enrolled. Of the total population of students for all schools 60% were black, 36% were Hispanic, a little more than 3% were white, and less than one percent Asian. The average number of teachers per school is 29 with a range of teachers from 22 to 43. All of the schools, except for one, had teacher leaders and four of the principals participated in the teacher leader professional development.

Table 4: *Sample Schools ITBS Scores and School Characteristics*

School	2002 ITBS Reading Scores Grades 3-8 % at/above	2002 ITBS Mathematics Scores Grades 3-8 % at/above	% of Low Income Students	Student Enrollment	% Student Race	Number of Teachers	Number of Teacher Leaders	Principal Leader
1	23.5	22.3	91.5	789	99.7 black	43	2	0
2	26.7	29.5	99.2	503	99.4 black	26	7	1
3	21.3	16.6	98.9	362	100 black	22	6	1
4	26.3	27.3	99.8	423	99.8 black	29	7	1
5	45.0	43.1	75.2	278	79.1 Hispanic 15.8 white 3.6 black		N/A	N/A
6	38.4	44.9	100	728	88.7 Hispanic 10.7 black	27	7	0
7	41.0	46.1	89.4	492	81.5 Hispanic 15.7 white 1.6 Asian 1.0 black	21	8	0
8	34.4	30.7	100	405	100 black	27	8	1
9	18.0	27.3	97.6	632	94.0 black 6.0 Hispanic	42	8	0
10	17.3	14.8	89.5	496	98.8 black	30	7	0

There were 280 teachers from the 10 schools who completed the end-of-year survey at their individual school site. This survey measured each school's level of collective efficacy. Each school, except for one, had a group of teachers who participated in weekly in-school meetings, Saturday professional development sessions and in-school collaboration. These teacher leaders completed the same end-of-year survey as the schools at the culminating Saturday professional development session for teacher leaders in May 2002 totaling 53 surveys of which 44 were usable. Nine surveys were incomplete and therefore, not included.

All ten schools had school improvement survey data available from the Consortium on Chicago School Research which meant that at least 42 percent of teachers completed a Consortium survey as this was the minimum requirement for the survey completion by the Consortium.

Measures

The measure of school collective efficacy is the dependent variable in relation to the university partnership and principal leadership which are independent variables. In its correlation to school-level achievement, school collective efficacy is an independent variable and the dependent variable is school-level student achievement.

School collective efficacy. Goddard's Collective Teacher Efficacy Scale (Goddard, 1998) was used to measure school collective efficacy. The scale was used as part of the end-of-year survey (Appendix A) and consists of 21 questions, 13 on group competence (six negative and seven positive) and eight questions on task (four each of negative and positive).

Goddard's scale was initially validated on a sample that consisted of 47 elementary schools in a large Midwestern urban school system. This scale was piloted and tested prior to implementation in the above sample. Factor analyses were used to analyze the content of the

scale. Items loading 0.40 or above were retained for use in the construction of a collective teacher efficacy scale. Internal consistency for the collective efficacy scale was assessed with Cronbach's alpha (Goddard, 1998, p. 89).

School-level student achievement. The ITBS is a standardized achievement battery from the School of Education at the University of Iowa that provides norm-referenced interpretations of scores which compare the performance of students against the performance of other students. ITBS measures the skills and achievement of students from kindergarten through grade eight. CPS traditionally administered the test to students in grades third through eighth. Test subjects in the ITBS are reading, language arts, mathematics, social studies and science. For the 2002 ITBS test results Chicago Public Schools began using the Standard Score or Scale Score that corresponds to the average performance of students. A school's percentage at/or above national norms in reading and mathematics was used by CPS to determine a school's accountability rating.

Internal consistency estimates of reliability coefficients range from 0.70 - 0.90 with most coefficients above 0.85 (Hoover, Hieronymus, Frisbie & Dunbar, 1996). The 2001 and 2002 ITBS combined test results for grades three-eight in reading and mathematics were used to measure student achievement. The ITBS is a standardized test that was administered district-wide each year to students in grades 3-8. The ITBS combined test scores for grades 3-8 was the factor used in determining a school's accountability rating. The test results were reported by the percentage of students in grades 3-8 who were at or above national norms in reading comprehension and mathematics. The 2001 and 2002 test scores for the individual schools were retrieved from the CPS website and compared as a means of measuring growth in school-level student achievement. ITBS scores are equated across levels and different

forms which permits comparing of student progress over time (Easton et al., 2003). The chart on page 34 compares 2001 to 2002 ITBS percentages of students meeting or exceeding national norms in reading and in mathematics.

Table 5: 2001 to 2002 Comparison Combined ITBS Scores Grades 3-8

School	2001 ITBS Reading Scores Grades 3-8 % at/above	2002 ITBS Reading Scores Grades 3-8 % at/above	Growth in School-Level Reading Achievement	2001 ITBS Mathematics Scores Grades 3-8 % at/above	2002 ITBS Mathematics Scores Grades 3-8 % at/above	Growth in School-Level Mathematics Achievement
1.	17.2	23.5	6.3	17.2	22.3	5.1
2.	24.1	26.7	2.6	28.3	29.5	1.2
3.	23.1	21.3	(1.8)	16.2	16.6	.4
4.	22.1	26.3	4.1	22.5	27.3	4.8
5.	44.3	45.0	1.7	39.6	43.1	3.5
6.	27.1	38.4	11.3	40.8	44.9	4.1
7.	39.2	41.0	1.8	47.8	46.1	(1.7)
8.	22.5	34.4	11.9	25.4	30.7	5.3
9.	25.3	18.0	(7.3)	30.0	27.3	(2.7)
10.	26.6	17.3	(9.3)	18.8	14.8	(4.0)

School-university partnership. This variable is measured by the number of school teacher leaders, teacher leaders' participation in seven Saturday workshops, the frequency of in-school workshops facilitated by university partner, and the total time reported by teacher leaders used for collaboration. Teacher leaders were school-based educators who helped to increase the school's effectiveness in implementing a curriculum framework correlated with the skills represented on the ITBS and methods to engage students in applying those skills in a variety of contexts so that the curriculum developed the skills through applications rather than direct skills instruction in isolation from content. The teacher leaders were the connectors between the curriculum framework and methods and the other teachers. They attended Saturday workshops where they were introduced to the focus of the month and strategies for teaching the focus. The focus of the month correlated with skill areas on the ITBS such as vocabulary, reading comprehension, math problem solving, data analysis and listening. During the Saturday workshops the teacher leaders reported on and demonstrated the implementation of strategies from the previous month's focus. The teacher leaders also connected with other teachers through weekly-in school meetings, classroom demonstrations, school workshops and lesson planning. The attendance data in Saturday workshops were gathered from inter-school workshop sign-in sheets and tallied (Appendix B), workshop evaluations were used to identify the number of in-school workshops that focused on the monthly instructional strategy and tallied (Appendix C), and on-line reports were reviewed to analyze teacher leader activities with other teachers. (Appendix D)

Principal leadership. The Chicago Consortium on Educational Research defined school leadership through teacher surveys. Teachers responded to survey questions about school leadership as an inclusive process and strategic orientation with respect to the extent to which

they agreed or disagreed with statements. The measures of school leadership included principal inclusive leadership (separation: 1.75; reliability: .075), teacher-principal trust (separation: 2.77; reliability: .089), teacher influence (separation: 2.34; reliability: .085), joint problem solving (separation: 2.16; reliability: .082), principal instructional leadership (separation: 2.53; reliability: .086), and program coherence (separation: 1.72; reliability: .075).

Procedures

Data collection. A year-end survey was administered to measure school collective efficacy, Iowa Test of Basic Skills test scores for 2001 and 2002 were compiled, school leadership data was obtained from the Consortium on Chicago School Research and individual school implementation of and participation in the school-university partnership were the data sources for the study. The partnership included Saturday workshops and weekly in-school meeting attendance, in-school workshops, and weekly on-line reporting. All end-of-year surveys were anonymous.

School collective efficacy. The end-of-year survey included the 21-item six-point Likert Collective Efficacy scale in addition to a question which asked teachers to indicate what components of the university partnership were most useful and another question that asked teachers to identify areas most important for further professional development. Following the directions for the collective efficacy scale, end-of-year survey answers for each of the twenty-one questions on the collective teacher efficacy scale were tallied and then averaged for the school. The average score is the collective efficacy score for the school.

The Collective Efficacy scale measured individual teachers' perception of the competence of the collective school. The instrument used to measure collective efficacy in the end-of-year survey was developed and tested for reliability and validity by Goddard (1998). Of

the total completed surveys, 199 were usable. The remaining surveys were not usable because the participants did not complete the surveys. In addition to schools completing the end-of-year survey, teacher leaders completed the end-of-year survey in May 2002 at the final Saturday workshop for the year. From the ten schools in the study, 53 teacher leaders completed the survey, of which 44 were usable. The nine surveys that were not included were due to incomplete responses.

Collective efficacy scores were tallied for the school and for teacher leaders using answers from the survey's long form as well as the survey's short form. Responses were tallied for both the long and short form to confirm the validity and reliability of the short form. Collective efficacy is a combination of group competence and the context of the task. The short form was developed because the long form 21-item scale:

Shows that 13 items reflect group competence which only eight (less than 40%) reflect task analysis. Since there is nothing in the conceptual model guiding the measure of collective efficacy suggest group competence and task analysis should be unevenly weighted in a school's collective efficacy score, it seemed desirable to seek a balance across categories. (Goddard, 2001, p. 8).

The 12-item scale and the 21-item scale are highly correlated ($r=.983$, $p<.001$), suggesting little change resulted from the omission of almost 43% of the items (from 21 to 12 items). "The significance of this finding is that the correlation was not low. Indeed, a low correlation would have suggested that the 12-item short form was measuring something different than the original scale" (Goddard, 2001, p. 14).

School-level student achievement. The 2001 and 2002 ITBS test scores for the individual schools were retrieved from the Chicago Public Schools website. Student achievement at the school level is measured by the percentage of students at or above national norms on the Iowa Test of Basic Skills (ITBS) in reading and mathematics using the combined test scores for students in grades third through eighth. These data were used to measure the change in school performance and examine the changes as correlated to collective efficacy scores for each school.

School-University partnership. The variable was measured by the number of school teacher leaders, the total hours of participation in seven Saturday workshops, the frequency of in-school workshops facilitated by or with the university partner, and the number of in-school teacher leader collaborations with other teachers. The role of the teacher leaders is central to the implementation of the partnership. The focus is on the teacher leaders' role in the partnership.

Principal leadership. Principal leadership was measured using the Consortium on Chicago School Research measure for school leadership. The Consortium surveys every two years teachers for grades sixth-tenth: the Consortium then compiles the responses under five Essential Supports for Student Learning. School Leadership is one of the five Essential Supports. This Essential Support, as defined by the Consortium, is comprised of information gathered on Teacher-Principal Trust, Teacher Influence, Principal Instructional Leadership and Program Coherence.

Signed permission letters from the principals for access to the Consortium data were forwarded via facsimile and mailed via United States postal service to the Consortium on Chicago School Research. In turn, school-level non-identifiable Statistical Package for Social

Sciences (SPSS) data were transmitted to the researcher as an attachment file via e-mail from the Consortium.

Nine of the 10 schools in the study had agreed to use of their data. School leadership for six of the 10 schools is measured by the Consortium on Chicago School Research through teacher surveys. The 2001 teacher survey data is used for five of the six schools and 1999 teacher data for the remaining school because 2001 data were not available from the Consortium for the remaining school. Three of the remaining four schools are without Consortium data due to less than 42% of teachers completing the survey. The last school did not consent to releasing school survey data from the Consortium.

Analysis Plan

This study addressed the following research questions in which both descriptive and inferential statistical analyses were employed:

- Is participation in the university-school partnership associated with collective efficacy?
- Is principal leadership associated with collective efficacy?
- Is there an association between collective efficacy and school-level achievement?

Prior to addressing the above primary research questions, several other relationships will be explored including (a) the relationship between the short and long forms of collective efficacy, (b) the relationship between school-wide collective efficacy and teacher leader collective efficacy, (c) the inter-relationships among the various measures of participation in the university-school partnership, and (d) the inter-relationships among the various measures of principal leadership.

Descriptive statistics. Means and standard deviations were computed for all quantitative variables. Prior to examining the three primary research questions listed above, several

correlations were computed. First, the correlation between the long and short forms of the collective efficacy measure, separately for the school-wide version and the teacher leader version, were computed. Second, the correlations between the school-wide version of collective efficacy and the teacher leader version were computed, for both the short and long forms. Third, the correlations between four measures of participation in university-school partnership were computed. Fourth, the correlations between the six measures of principal leadership were computed. Correlations were employed for these analyses because the variables are all interval or ratio level.

Inferential statistics. All inferential statistics will be computed using two-tailed tests and a significance level of .05 (i.e. $\alpha = .05$). The two-tailed test was chosen because it allows for the possibility for there to be two alternative hypotheses to the null hypothesis, one positive or one negative. However, given the small sample size ($N=10$ schools), relationships that are statistically significant at the .10 α level will also be interpreted but increasing the level of significance from $\alpha = .05$ to .10 α decreases the reliability of the results.

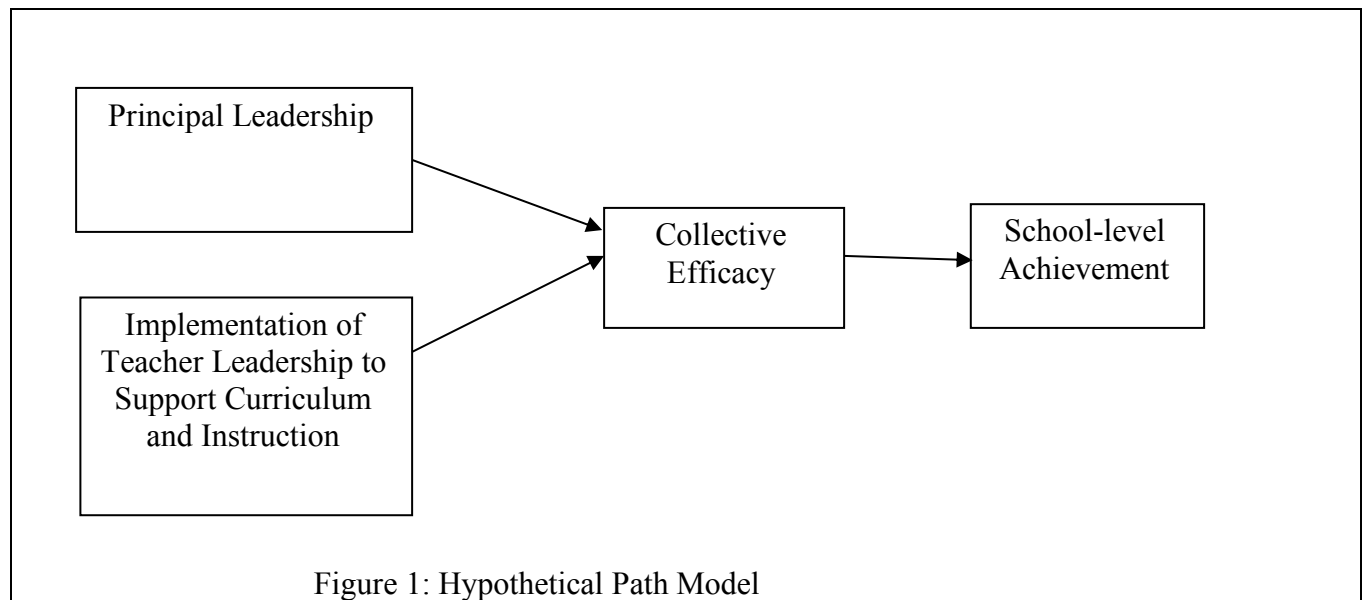
The first research question of the study is: Is participation in university-school partnership associated with collective efficacy? To address this question, the correlations between the four measures of the partnership implementation (number of hours of school workshops facilitated by the university, hours of attendance in Saturday meetings, hours of weekly in-school meeting attendance, and time teacher leaders spent collaborating and reported through online reports) and the four measures of collective efficacy (short- and long-forms for the school-wide and teacher leader versions) will be computed. Correlations are the statistical method of choice to address the first research question because the relevant variables are interval or ratio level.

The second research question of the study is: Is the principal's leadership associated with collective efficacy? To address this question, the correlations between the six dimensions of principal leadership (instructional leadership, joint problem solving, program coherence, inclusive leadership, teacher-principal trust, and teacher influence) and the four measures of collective efficacy (short- and long-forms for the school-wide and teacher leader versions) were computed.

The third research question asks if there is an association between collective efficacy and school-level achievement? To address this question, correlations between the four collective efficacy measures (short- and long-forms for the school-wide and teacher leader versions) and the four school-level achievement measures (reading scores in 2001, reading scores in 2002, mathematics scores in 2001, and mathematics scores in 2002) will be computed. Correlations will be employed for these analyses because all of the variables are interval level.

Following these analyses, an exploratory analysis was conducted using path analysis techniques. That is, in addition to examining (a) whether or not participation in the university-school partnership and principal leadership predict collective efficacy, and (b) whether collective efficacy predicts school-level achievement, these two effects will be combined. Path analysis was employed because the variables being examined are interval or ratio level, and the researcher is attempting to examine a causal chain of effect (from participation in university-school partnership and principal leadership to collective efficacy, and then from collective efficacy to school-level achievement). These analyses are considered exploratory because they go beyond the specific research questions, which are addressed via simple correlations in attempting to build a model of the relationships between all of the study variables. That is, the primary answers to the specific research questions are addressed in the simple correlation; the

use of path analysis is an extension of the simple correlations to be used to supplement and extend them. The following figure represents a hypothetical path model:



Chapter IV. Results

This chapter reports the results of the statistical analyses performed to address the research questions asked in this study. The study addressed three primary research questions related to school collective efficacy in which both descriptive and inferential statistical analyses were employed.

1. Is there an association between collective efficacy and school-level achievement?
2. Is participation in the university-school partnership associated with collective efficacy?
3. Is principal leadership associated with collective efficacy?

Descriptive statistics are presented for school level achievement, collective efficacy and teacher leadership through implementation of School-University partnership and principal leadership. Preliminary statistical analyses reported include correlations between measures of collective efficacy, between measures of implementation by teacher leaders' participation in the School-University partnership, and between the measures of principal leadership. Inferential analysis to address the three research questions is reported. Additionally, the results from exploratory path analyses are reported.

Descriptive Statistics

Means, standard deviations, and number of schools providing valid data are presented in Table 6. As can be seen, both the reading scores and mathematics scores increased from 2001 to 2002. The number of hours of participation in the School-University Partnership was highest online and on Saturdays. Instructional leadership has the highest mean amongst the school leadership factors.

Table 6
Descriptive Statistics

	Mean	Standard Deviation	Number of Schools
School-level Achievement			
Reading scores in 2001	27.15	8.27	10
Reading scores in 2002	29.19	9.87	10
Difference between reading scores	2.04	6.98	10
Math scores in 2001	28.66	10.89	10
Math scores in 2002	30.26	11.24	10
Difference between math scores	1.60	3.47	10
Collective Efficacy			
School-level long form	3.98	.30	10
School-level short form	3.76	.27	10
Connector-level long form	3.82	.34	9
Connector-level short form	3.62	.32	9
School-University Partnership Implementation			
Hours of In-School Workshop Participation	3.30	1.64	10
Saturday Hours of Participation	12.11	2.15	9
Weekly In-school Meetings Participation	5.50	1.93	8
Online Hours of Participation	18.00	4.73	7
Principal Leadership			
Instructional Leadership	6.94	1.04	7
Joint Problem Solving	5.19	.74	7
Program Coherence	5.11	.78	7
Inclusive Leadership	6.78	1.71	7
Teacher/Principal Trust	6.64	1.38	7
Teacher Influence	6.05	1.00	7

Preliminary Analyses

Table 7 contains the correlations between the four measures of collective efficacy. All of the correlations are high and positive, although only half are statistically significant due to the small number of schools. The highest correlations are between the two school-level forms (.83) and the two connector-level scores (.84).

Table 7
Correlations between Collective Efficacy Measures

	1.	2.	3.	4.
1. School-level Long Form	1.00			
2. School-level Short Form	.83*	1.00		
3. Connector-level Long Form	.78*	.60	1.00	
4. Connector-level Short Form	.64	.64	.84*	1.00

Note. * $p < .05$.

The Short Form of the Collective Efficacy Scale is a 12-item scale. Goddard (2002) built on the work of Goddard, Hoy, & Woolfolk-Hoy (2000) to develop and test a 12-item short Collective Efficacy Scale. The psychometric properties of the short form are impressive and at least equivalent to the longer 21-item form; the validity and reliability of the short form are strong (Goddard, 2002).

Table 8 contains the correlations between the four measures of the School-University Partnership participation through teacher leader implementation. Again, all of the correlations are positive, indicating that a high degree of participation in the partnership in one area tended to

correspond to a high degree of participation in other areas. The highest correlation was between in-school meeting participation and Saturday workshop participation.

Table 8

Correlations between Implementation of Teacher Leadership through School University Partnership Participation Measures

	1.	2.	3.	4.
1. Hours of In-School Workshop Participation	1.00			
2. Saturday Hours of Participation	.43	1.00		
3. In-school Meeting Hours of Participation	.21	.77*	1.00	
4. Online Hours of Participation	.20	.36	.70	1.00

Note. * $p < .05$.

Table 9 contains the correlations between the six measures of principal leadership. Again, all of the correlations were positive, although again several were not statistically significant due to the small sample size. The highest correlation was between instructional leadership and inclusive leadership. The second and third highest correlations are between teacher/principal trust and joint problem solving, and between teacher/principal trust and inclusive leadership.

Table 9
Correlations between Principal Leadership Measures

	1.	2.	3.	4.	5.	6.
1. Instructional Leadership	1.00					
2. Joint Problem Solving	.93*	1.00				
3. Program Coherence	.77*	.77*	1.00			
4. Inclusive Leadership	.96*	.85*	.71	1.00		
5. Teacher/Principal Trust	.88*	.91*	.88*	.90*	1.00	
6. Teacher Influence	.68	.65	.44	.69	.66	1.00

Note. * $p < .05$.

Inferential Analyses

The first research question was “Is there an association between collective efficacy and school-level achievement?” This question was addressed by computing the correlations between the four measures of collective efficacy and the four measures of school-level achievement in math and reading. These correlations are presented in Table 10. None of the correlations were statistically significant although the majority were positive indicating that including a larger number of schools may have produced more robust results.

Table 10
Correlations between Collective Efficacy Measures and School-level Achievement

	School- level Long Form	School- level Short Form	Connector- level Long Form	Connector- level Short Form
ITBS Reading scores in 2001	-.03	.29	.41	.47
ITBS Reading scores in 2002	.13	.33	.53	.45
Difference between reading scores	.22	.12	.29	.14
ITBS Math scores in 2001	.00	.34	.30	.35
ITBS Math scores in 2002	.03	.33	.34	.34
Difference between math scores	.09	.00	.11	-.02

Note. None of the correlations are statistically significant.

The second research question of the study was “Is participation in School-University Partnership associated with collective efficacy?” This question was addressed by computing the correlations between the four measures of collective efficacy and the four measures of participation in the partnership, which are presented in Table 11. Although all but two of the correlations were positive (except for those between the school-level short form and number of workshop hours, and between the school-level short form an number of online hours), only one was statistically significant (between the school-level long form and Saturday hours). Vicarious experience and social persuasion (Bandura 1986, 1997) are sources of influence on perceived collective efficacy. Teachers listen to each other’s stories about achievements and success stories. Vicarious experience and modeling serve as effective ways to promote collective teacher

efficacy. Social persuasion such as talks, workshops, professional development opportunities and feedback influence perceived efficacy.

Table 11
Correlations between Collective Efficacy Measures and University Partnership Participation Measures

	Workshop Hours	Saturday Hours	In-school Hours	Online Hours
School-level Long Form	.28	.73*	.53	.20
School-level Short Form	-.04	.55	.32	-.16
Teacher Leader-level Long Form	.26	.47	.65	.38
Teacher Leader-level Short Form	.08	.21	.46	.27

Note. * $p < .05$.

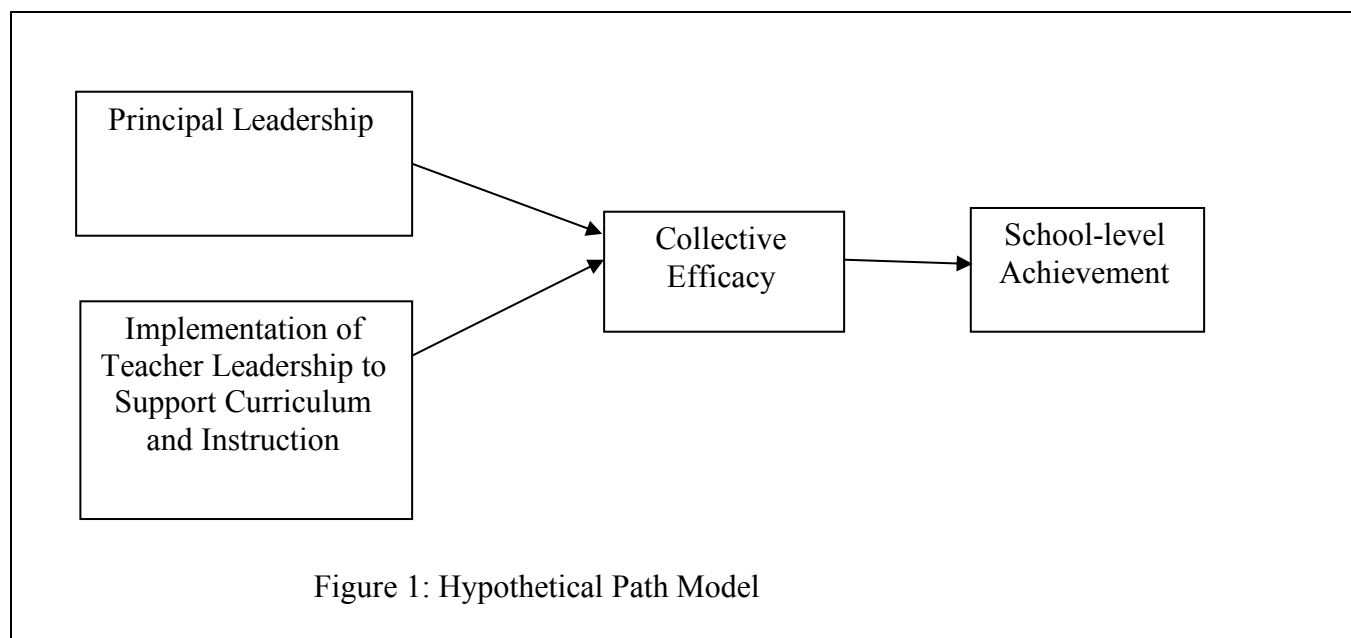
The third research question was “Are characteristics of principal leadership associated with collective efficacy?” This question was addressed by computing the correlations between the four measures of collective efficacy and the six measures of school leadership, which are presented in Table 12. Joint problem solving was correlated with teacher leader collective efficacy (for the long form). Program coherence was correlated with both forms of school-level collective efficacy. The only other statistically significant correlation was between teacher/principal trust and the teacher leader collective efficacy short form. Ross and Gray (2006) found that transformational leadership had an impact on the collective efficacy of the school. The standardized regression weight of the path from leadership to teacher efficacy was .42 and “the leadership-efficacy relationship matters because of the well-established connection between collective teacher efficacy and student achievement” (p. 808).

Table 12
Correlations between Collective Efficacy Measures and Principal Leadership Measures

	School- level Long Form	School- level Short Form	Connector- level Long Form	Connector- level Short Form
Instructional Leadership	.56	.42	.59	.59
Joint Problem Solving	.74	.58	.83*	.72
Program Coherence	.84*	.82*	.49	.61
Inclusive Leadership	.40	.31	.52	.67
Teacher/Principal Trust	.70	.62	.76	.87*
Teacher Influence	.40	.28	.66	.76

Note. * $p < .05$.

In addition to addressing the three main research questions of the study, exploratory path analyses were conducted in order to determine if there were indirect effects between (a) the principal leadership variables and school-level achievement through collective efficacy and (b) the School-University Partnership participation variables and school-level achievement through collective efficacy.



There were six school leadership variables, four collective efficacy variables, and four school-level achievement variables, resulting in $6 \times 4 \times 4 = 96$ indirect effects to be tested under (a). There were four School-University Partnership participation variables, four collective efficacy variables, and four school-level achievement variables, resulting in $4 \times 4 \times 4 = 64$ indirect effects to be tested under (b). Of the 160 total indirect effects tested, none were statistically significant at the .05 α level. The primary reason for the lack of statistical significance was the lack of statistically significant relationships between collective efficacy and school-level achievement (see Table 10). That is, although the first part of the path from either principal leadership or School-University Partnership participation on collective efficacy was often statistically significant (see Tables 11 and 12), the second part of the path from collective efficacy to school-level achievement was not significant (again, see Table 10), meaning that the indirect effects were not statistically significant.

While in this study none of the correlations were statistically significant between collective efficacy measures and school-level achievement Goddard et al. (2000) presented

findings that collective teacher efficacy is a significant predictor of student achievement in both mathematics and reading achievement. In the application of Goddard's full model, collective teacher efficacy explained 53.27% and 69.64% of the between-school variance in mathematics and reading, respectively. The next chapter discusses the results of the study and the implications for further research.

Chapter V. Discussion

This chapter presents the results of the study with respect to the purpose of the study and the research questions. The discussion includes the summary of the findings, the implications and recommendations of the findings, and the limitations of the study. In addition, suggestions for further research based on the results of the study are discussed.

The purpose of this study was to determine the effects of collective teacher efficacy on school-level student achievement in urban elementary schools in Chicago. Specifically, this correlational study sought to determine if between-school variance in school-level student achievement is related to school collective efficacy and to what extent. This study is based on Albert Bandura's social cognitive theory and his constructs of perceived self-efficacy and collective-efficacy. Bandura recognized that the perceived self-efficacy of teachers affects academic progress in individual classrooms but that teachers operate in schools which are collective in nature. The belief systems that are created in schools can have energizing or unsettling effects on the effectiveness of a school.

In this study a school's level of collective efficacy was measured using Goddard's 1998 six-point 21-item Likert collective teacher efficacy scale. Each school's collective efficacy measure was examined in relationship to school-level standardized test scores. In addition to measuring collective efficacy with this scale, the researcher examined whether it is possible to (1) to determine if there is a positive relationship between collective efficacy and the degree to which teacher leaders implement components of a School-University program, and (2) to determine if characteristics of principal leadership is positively associated with higher levels of collective efficacy.

Summary of Study Findings

In the current study none of the correlations was statistically significant between collective efficacy and school-level achievement. The correlation between collective efficacy and teacher leaders' participation in university-facilitated Saturday workshops was statistically significant. The final statistically significant correlation was between collective efficacy and the principal leadership characteristics of Program Coherence, Joint Problem Solving and Teacher/Principal Trust.

The literature reviewed as a basis for this study is grounded in Bandura's social learning theory (1997) which defines human behavior in terms of continuous reciprocal interaction between cognitive, behavioral and environmental influences. Social cognitive theory postulates that the control individuals and collectives exert over their lives is influenced by their perceptions of efficacy. Bandura (1997) defines collective efficacy as "people's shared beliefs that they can work together to produce effects." Based upon the literature reviewed and the purpose of this study, Goddard's (1998) Collective Efficacy Scale to measure the construct in schools was utilized in this study. Goddard's scale measuring a school's level of collective teacher efficacy was based on Bandura's research and it is reliable (.96) and valid (p. 102).

While in the current study none of the correlations is statistically significant between collective efficacy measures and school-level achievement, there are other studies by Goddard et al.(2000) who presented findings from a sample size of 48 urban elementary schools that show collective teacher efficacy is a significant predictor of between school differences in student achievement in both mathematics and reading achievement. In the application of their full model, collective teacher efficacy explained 53.27% and 69.64% of the between-school variance in mathematics and reading, respectively. Therefore, Goddard et al. results suggest that with a larger sample size, the results of this study would confirm the research results from 2000. A

larger sample size for this study wasn't possible because of the number of schools in partnership with the university.

Bandura (1986, 1997) also suggests in his research and Goddard (2000) showed that just as schools learn vicariously from other schools, they are also influenced by leaders (social persuasion) and affective states that result from collective conditions such as successes or tragedies that impact all school members. Teachers listen to each other's stories about achievements and success. Vicarious experience and modeling serve as effective ways to promote collective teacher efficacy. Social persuasion such as talks, workshops, professional development opportunities and feedback influence perceived efficacy. It is this proposition that the additional research questions concerning the relationship between school collective efficacy and the implementation of a School-University partnership by teacher leaders and principal leadership were based.

The inferential analyses of the additional questions in the study show that there was one statistically significant relationship between the school-level collective efficacy long form and Saturday hours for teacher leaders implementing the School-University Partnership. The other statistically significant correlation is between the leadership characteristics program coherence, joint problem solving and teacher-principal trust with both forms of school-level collective efficacy.

Examples of vicarious experience and social persuasion amongst the teacher leaders are evident in their responses to questions asked in Saturday workshop evaluations. At one of a series of Saturday workshops a total of 174 teacher leaders including principals attended on Visual Literacy 161 participants completed the workshop evaluation. Of the 21 schools in

attendance, eight of the ten schools in the current study participated in this workshop. Samples of the responses from teacher leaders and principals to the following questions are below:

1. What will you do in your own instructional work based on today's workshop?

- *Instruct teachers to have students illustrate their writing more and make students more aware of culture and tolerance.*
- *Use the graphic organizers I saw examples of to show my students' work.*
- *I saw some dynamite exhibits and I plan to implement some ideas in my own instruction.*
- *Plan a school activity utilizing information from today.*
- *Apply many of the new ideas and share with my connecting teachers.*
- *The opportunity to see other teacher ideas has provided me with hands-on activities, which will be easy to use. I will share several ideas with coworkers who I connect with.*
- *I will use the ideas I saw posted and then I will share them with others.*
- *Use new ideas brought by other teachers.*
- *I will use several suggestions to make sure my children advance from knowledge to understanding.*
- *I will use the word bank form for reading lessons. I will have students picture a paragraph.*
- *Make learning visible in all areas of study. Share the many ideas that I've gained today.*

2. What will you do to enlighten your school—what kinds of activities will you share, what will you exhibit, what will you do to share your educational light?

- *I will try to be more creative in my presentation. Include the students in organization of materials and share with other classes or grade level.*

- *Make story map in a book, use the phonics picture bank, and picture a special paragraph.*
- *Meet with the collaborators to choose a school wide theme, which will have a culminating activity.*
- *I will use the presentations that other teachers developed and adapt them to our school.*
- *Continue to work with teachers on the writing process. Motivate, encourage, and support with strategies.*
- *I will connect and observe the teachers' progress from today's workshop.*
- *Present to our faculty at the staff meeting what we can do to visualize the curriculum.*
- *Connect with teachers using ideas in Peace Corps book.*
- *Share the ideas I saw from other schools with the teachers at my school.*
- *Share ideas with primary grade level.*
- *I am going to use strategies I've seen today in my classroom. I am also going to share my gift with the teachers who were not here today at the workshop.*
- *Have staff that attended workshop, the Connectors, share a strategy that teachers could use on Wednesday.*
- *Organize information and plan to share with other teachers.*
- *I will share with teachers, examples of student assessments from other schools.*
- *Share activities and books and demonstrate in other classrooms.*

3. What was most useful in today's workshop?

- *Teacher ideas.*
- *See other teachers' displays.*
- *Seeing exhibits from other schools across all grade levels.*

- *Getting ideas from other teachers.*
- *Viewing the exhibits of fantastic work.*
- *Looking around at other teachers' work.*
- *The teacher exhibits were most useful.*
- *Sharing.*
- *Teachers sharing.*
- *The opportunity to walk around and view the various school project displays.*
- *Viewing work, sharing ideas, and acknowledging teachers for their work.*
- *I had the time to share.*
- *Seeing examples of work from other schools.*
- *The sharing of the projects.*
- *Looking at ideas for student work from other teachers.*
- *Sharing with other teachers.*
- *Student work displays and handouts.*
- *The chance to talk to other teachers.*
- *I now fully understand how to use these strategies.*
- *The teacher strategies were very useful.*
- *Viewing other teachers' work.*
- *Sharing of ideas from other colleagues.*
- *The most useful in today's workshop were the presentation of the student work and the materials from the Peace Corps.*

These statements from the workshop participants represent the influence of vicarious experiences and social persuasion on how principals and teachers perceive their teaching tasks

and the context in which they perform. Bryk and Schneider (2002) identify these types of interrelated social exchanges in schools as relational trust.

Relational trust, so conceived, is appropriately viewed as an organizational property in that its constitutive elements are socially defined in the reciprocal exchanges among participants in a school community, and its presence (or absence) has important consequences for the functioning of the school and its capacity to engage fundamental change. Bryk & Sneider, 2002, p. 22).

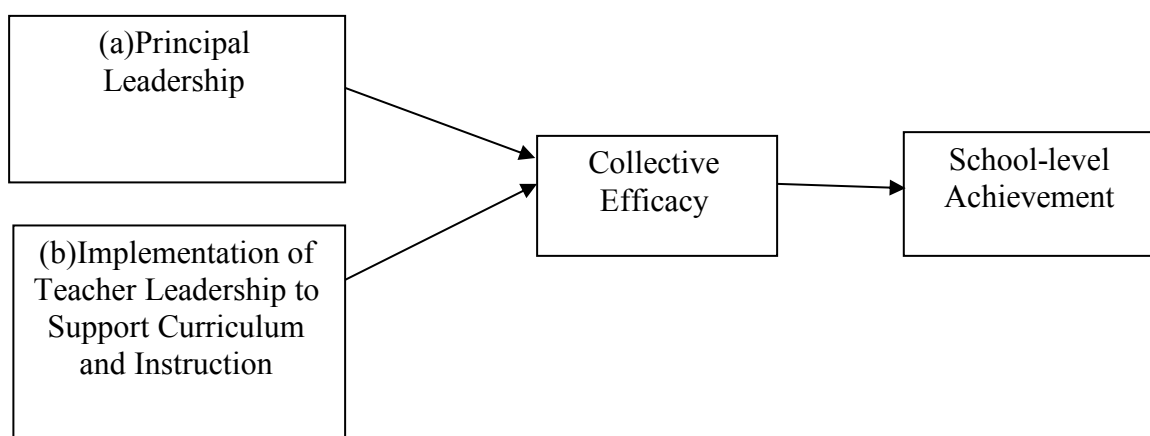
Bryk and Schneider (2000) also noted that in teacher-principal relations that the reciprocal vulnerabilities that are inherent to this relationship can be lessened by trust relations that create opportunities for jointly beneficial outcomes.

The Consortium on Chicago School Research's (CCSR) study *School Leadership and the Bottom Line in Chicago* (2000), examined the key elements of principal leadership in effective schools in Chicago and identified Program Coherence as one of the measures in identifying effective school leaders. In the CCSR survey Program Coherence was defined as the degree to which teachers feel the programs at their school are coordinated with each other and with the school's mission. The reliability of questions in their survey pertaining to Program Coherence is 0.75. The other statistically significant correlation in this current study was between the leadership characteristic Teacher-Principal Trust and the teacher leader collective efficacy short form. CCSR describes this characteristic from their same 2000 study as "the extent to which teachers feel their principal respects and supports them and has a reliability of 0.89" (p. 19).

In another study by Ross and Gray (2006) it was found that transformational leadership had an impact on the collective efficacy of the school. The standardized regression weight of the path from leadership to teacher efficacy was .42 and "the leadership-efficacy relationship matters

because of the well-established connection between collective teacher efficacy and student achievement” (p. 185).

In the current study exploratory path analyses were conducted in addition to addressing the three main research questions of the study, in order to determine if there were indirect effects between (a) the principal leadership variables and school-level achievement through collective efficacy and (b) the School-University Partnership participation variables and school-level achievement through collective efficacy.



The first part of the path from either principal leadership or School-University Partnership participation on collective efficacy was often statistically significant (see Tables 6 and 7) the second part of the path from collective efficacy to school-level achievement never was (see Table 5), meaning that the indirect effects were not statistically significant. The exploratory path analyses resulted in a lack of statistical significance due to the relationships between collective efficacy and school-level achievement (again see Table 5). Again, the results of Goddard, Hoy and Wolfolk’s 2000 study would suggest that with a larger sample size of schools that this study would have resulted in a correlation between school collective efficacy and student achievement and that leadership characteristics and implementation of School-University

partnership by teacher leaders would have a direct impact on school-level achievement through collective efficacy.

Limitations

The size of the sample is the most limiting factor of the current study. Only 10 schools were available to include in the study which proved to be limiting. Another limitation in the study is the number of times collective efficacy was measured and the timing of the measurement. Bandura (1986, 1997) cited four experiences that shape self-efficacy beliefs that are critical for individuals as well as for groups in forming their collective efficacy beliefs. Mastery experience, vicarious experience, social persuasion and affective states have different effects on organizations depending on the organization's level of efficacy. Implementing the collective efficacy scale at different times would have provided additional data on each school's level of collective efficacy. This may be evidenced by the May 30, 2002 press conference held by Chicago Mayor Richard M. Daley where he announced that "scores on the annual Iowa Tests of Basic Skills had gone "up" in Chicago's elementary and high schools." The mayor praised his new school administrative team and promised even more improvements in the future. All but one of the schools completed the Collective Efficacy scale after this announcement. The one school that completed the scale prior to the Mayor's announcement and receiving their school level scores had the lowest school Collective Efficacy score (3.5) of all the schools but experienced significant increases in reading and mathematic scores from 2001 to 2002. The school with the second lowest Collective Efficacy score (3.6) was surveyed after the Mayor's press conference and after the school was aware of significant decreases in their school's ITBS scores. The surveys were administered at all of the remaining schools after the Mayor's announcement but before teachers were aware of school-level test scores. The Collective

Efficacy scores at the remaining schools ranged from 3.8 to 4.4. Measuring each school's collective efficacy during different points in the year may have resulted in a more accurate measurement of each school's collective efficacy.

The current study did not explore additional factors influencing the social context of the participating schools which may have influenced the outcomes and levels of school collective efficacy. For example, during the time of this study as a part of CPS probation policy's external support system schools on probation were assigned Probation Managers in addition to being required to select an external partner (CSSR, 2003). Probation managers were experienced and often retired principals who were assigned to mentor and supervise the probation school's principal and monitor the implementation of school improvement activities. Probation managers commented in the CSSR (2003) study that they "received very little guidance as to what they should focus on in probation schools and no training on how to be effective" (p. 8). Half of the probation managers faulted weak leadership on the part of principals either in addition to or instead of teacher failings for school failure.

While most principals of the schools in this study supported the School-University Partnership, Probation Managers, external partners and other partners "bring to schools differing assumptions and strategies. This raises the question of whether the theories of action of assistance providers are consistent with one another and with those of the district."

Significance of the Research

Goddard (1998) raises the possible relationship among collective teacher efficacy and leadership and suggests the development of a tool to measure administrator efficacy to assess school leaders' perception of the leadership task at hand as well as self-perceptions of personal

competence as a leader. The tool to measure administrator efficacy can address questions such as:

- Can highly efficacious school leaders improve the collective efficacy of a debilitated faculty?
- Does the collective teacher efficacy already present in a school influence the efficacy perceptions of new school leaders?
- Do efficacious administrators make more effective decisions?

In the current study there were correlations between the leadership characteristics Program Coherence and Teacher-Principal Trust and collective efficacy suggesting that these may be two measures of administrative efficacy. In addition, the correlations are significant in that they show that there is a relationship between principal leadership and collective efficacy and with a larger sample size principal leadership can have an effect on student achievement through collective efficacy. This implies that if there are ways for principals to increase collective efficacy, then it is likely that school-level student achievement will rise.

The findings concerning the relationship between teacher leaders participating in professional development activities within and between schools and collective efficacy is significant. Again, these findings support Bandura's theory that vicarious experience and modeling serve as effective ways to promote collective teacher efficacy. This is significant to schools, leaders and districts as they explore ways to improve school-level student achievement.

Conclusion

The current research represents a constructive continuation for theorists, researchers and schools alike who are interested in the social context of schools and student achievement. Schools are unique organizations yet there are few studies on collective teacher efficacy and

fewer that examine the relationship between collective efficacy and student achievement and other social factors influencing these two variables. This research supports Bandura's (1993) study and utilizes Goddard's (1998) Collective Efficacy Scale to examine the relationships between collective efficacy and student achievement, teacher leadership and principal leadership. The findings support Goddard's research in urban elementary schools and confirms the concepts of social cognitive theory that may be used to explain the social context of schools.

Goddard's collective efficacy scale was used in 10 urban elementary schools and used to determine the relationship between principal leadership and collective efficacy and teacher leadership and collective efficacy to determine the impact on student achievement.

Goddard suggested, based on Bandura's theory, that mastery experiences are the most powerful efficacy changing forces, yet they may be the most difficult to deliver to faculty with low collective efficacy. He recommends thoughtfully designed professional development activities as a way of delivering mastery experiences. He also suggested providing vicarious learning and social persuasion to build collective efficacy. The Saturday workshops in which the teacher leaders engaged through the School-University Partnership provided these suggested activities.

Schools are unique and complex organizations that are influenced by many factors. This study offers only beginning evidence supporting a relationship between principal leadership and teacher leadership on collective efficacy which is found to have a strong relationship to school level student achievement.

REFERENCES

- Allinder, R. M. (1994). The Relationship Between Efficacy and the Instructional Practices of Special Education Teachers and Consultants. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 17(2), 86–95.
- Armor, D., Oseguera, P., Cox, M., King, N., McDonnell, L., Pascal, A., Pauly, E., Zellman, G. (1976). *Analysis of the school preferred reading programs in selected Los Angeles minority schools*. Rand Corporation.
- Ashton, P. T., & Webb, R. B. (1986). *Making a difference: teachers sense of efficacy and student achievement*. New York: Longman.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, N.J.: Prentice Hall.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215.
- Bandura, A. (1986). *Social foundations of thought and action: a social cognitive theory*. Englewood Cliffs, N.J.: Prentice-Hall.
- Bandura, A. (1993). Perceived Self-Efficacy in Cognitive Development and Functioning. *Educational Psychologist*, 28(2), 117-148.
- Bandura, A. (1997). *Self-efficacy: the exercise of control*. New York: W.H. Freeman.
- Bandura A. (2001). Social Cognitive Theory: An Agentic Perspective. *Annual Review of Psychology*, 52, 1-26.
- Bryk, A. S., Sebring, P. B., Kerbow, D., Rollow, S., & Easton, J. Q. (1998). *Charting Chicago school reform: democratic localism as a lever for change*. Boulder, Colo.: Westview Press.

- Bryk, A. S., & Schneider, B. L. (2002). *Trust in schools: a core resource for improvement*. New York: Russell Sage Foundation.
- Coladarci, T. (1992). Teachers' Sense of Efficacy and Commitment to Teaching. *The Journal of Experimental Education*, 60(4), 323-337.
- Easton, J. Q., Correa, M., Luppescu, S., Park, H., Ponisciak, S., Rosenkranz, T., & Spote, S. (2003). *How Do They Compare? ITBS and ISAT Reading and Mathematics in the Chicago Public Schools, 1992-2002*. Chicago: Consortium on Chicago School Research.
- Feltz, D. L., & Lirgg, C. D. (1998). Perceived team and player efficacy in hockey. *Journal of Applied Psychology*, 83, 557-564.
- Finnegan, K., O' Day, J., & Wakelyn, D. (2003). *External Support to Schools on Probation: Getting a Leg Up*. Chicago: Consortium on Chicago School Research
- Gibson, S., & Dembo, M. H. (1984). TEACHER Efficacy: A Construct Validation. *Journal of Educational Psychology*, 76(4), 569-582.
- Gilles, C. & Cramer, M. (2003, April). The impact of school-university partnerships on classroom teachers and their teaching, presented at the meeting of the American Educational Research Association, Chicago, IL.
- Goddard, R. D. (1998). *The Effects of Collective Teacher Efficacy on Student Achievement in Urban Public Elementary School* (Unpublished doctoral Dissertation). Ohio State University.
- Goddard, R. D., Hoy, W. K., & Hoy, A. W. (2000). Collective Teacher Efficacy: Its Meaning, Measure, and Impact on Student Achievement. *American Educational Research Journal*, 37(2), 479-507.

- Goddard, R. D. (2001). A Theoretical and Empirical Analysis of the Measurement of Collective Efficacy: The Development of a Short Form. *Educational and Psychological Measurement, 61*(6), 1071-1084.
- Goddard, R. D. (2001). Collective Efficacy: A Neglected Construct in the Study of Schools and Student Achievement. *Journal of Educational Psychology, 93*(3), 467-476.
- Goddard, R. D., & Goddard, Y. L. (2001). A multilevel analysis of the relationship between teacher and collective efficacy in urban schools. *Teaching and Teacher Education, 17*, 807-818.
- Hodges, L., & Carron, A. V. (1992). Collective efficacy and group performance. *International Journal of Sport Psychology, 23*(1), 48-59.
- Hoover, H. D., Hieronymus, A. N., Frisbie, S. D., & Dunbar, S. B. (1996). *ITBS: Norms and score conversions with technical information*. Itasca, IL: Riverside.
- Little, B. L., & Madigan, R. M. (1997). The relationship between collective efficacy and performance in manufacturing work teams. *Small Group Research, 28*(4), 517-534.
- Meijer, C.J.W., & Foster, S.F. (1988). The effect of teacher self-efficacy on referral chance. *The Journal of Special Education, 22*(3), 378-385.
- Rosenholtz, S. J. (1989). *Teachers' workplace: the social organization of schools*. New York: Longman.
- Ross, J. A. (1994). Beliefs that make a difference: The Origins and Impacts of Teacher Efficacy, presented at Annual meeting of Canadian Association for Curriculum Studies, Calgary, Alberta, Canada.
- Ross, J. A., & Gray, P. (2006). Transformational leadership and teacher commitment to organizational values: The mediating effects of collective teacher efficacy. *School*

- Effectiveness and School Improvement*, 17(2), 179–199.
- Rotter, J. B. (1966). Generalized Expectancies for Internal Versus External Control of Reinforcement. *Psychological Monographs: General and Applied*, 80(1), 1-28.
- Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy. *Science*, 277, 918-924.
- Sebring, P. B., & Bryk, A. S. (2000). School Leadership and the Bottom Line in Chicago. *Phi Delta Kappan*, 81(6), 440-443.
- Selke, M. J. (1996). Cultural Analysis of School-University Partnerships: Assessing Dynamics and Potential Outcomes, presented at the Annual Meeting of the American Association of Colleges for Teacher Education.
- Tschannen-Moran, M., Hoy, A. W., & Hoy, W. K. (1998). Teacher Efficacy: Its Meaning and Measure. *Review of Educational Research*, 68(2), 202-48.
- Whitney, K. (1994). Improving group task performance: The role of group goals and group efficacy. *Human Performance*, 7, 55-78.
- Woolfolk, A. E., & Hoy, W. K. (1990). Prospective Teachers' Sense of Efficacy and Beliefs About Control. *Journal of Educational Psychology*, 82(1), 81-91.

APPENDIX A

End-of-Year Teacher Survey 2001-2002

We are surveying teachers to find out how effective our work has been and how we can provide additional support. Please check the support that was most useful to you this year:

- ☐ in-school workshops
- ☐ classroom support from the DePaul Center for Urban Education representative
- ☐ classroom support from other teachers
- ☐ four-quarter planning guides
- ☐ instructional activity guides

Which areas should be the focus for further professional development? Check all that are important to you.

- ☐ teaching reading in the content areas
- ☐ teaching writing
- ☐ teaching phonics
- ☐ teaching math
- ☐ teaching science
- ☐ teaching social studies
- ☐ assessing students
- ☐ motivating students
- ☐ responding to discipline needs
- ☐ working with parents
- ☐ grade-level planning
- ☐ integrating arts into instruction

Please also complete the following survey on the reverse side to help us organize staff development that responds to school-wide priorities.

All information that you provide will be kept strictly confidential and will not identify you personally in any way.

Thank you.

Please circle your level of agreement with each of the following statements from STRONGLY DISAGREE (1) to STRONGLY AGREE (6). Please answer the questions as they pertain to your school environment.

	Strongly Disagree			Strongly Agree		
1. Teachers in the school are able to get through to the most difficult students.	1	2	3	4	5	6
2. Teachers here are confident they will be able to motivate their students.	1	2	3	4	5	6
3. If a child doesn't want to learn teachers here give up.	1	2	3	4	5	6
4. Teachers here don't have the skills needed to produce meaningful student learning.	1	2	3	4	5	6
5. If a child doesn't learn something the first time teachers will try another way	1	2	3	4	5	6
6. Teachers in this school are skilled in various methods of teaching.	1	2	3	4	5	6
7. Teachers here are well-prepared to teach the subjects they are assigned to teach.	1	2	3	4	5	6
8. Teachers here fail to reach some students because of poor teaching methods.	1	2	3	4	5	6
9. Teachers in this school have what it takes to get the children to learn.	1	2	3	4	5	6
10. The lack of instructional materials and supplies makes teaching very difficult.	1	2	3	4	5	6
11. Teachers in this school do not have the skills to deal with student disciplinary problems.	1	2	3	4	5	6
12. Teachers in this school think there are some students that no one can reach.	1	2	3	4	5	6
13. The quality of school facilities here really facilitates the teaching and learning process.	1	2	3	4	5	6
14. The students here come in with so many advantages they are bound to learn.	1	2	3	4	5	6
15. These students come to school ready to learn.	1	2	3	4	5	6
16. Drugs and alcohol abuse in the community make learning difficult for students here.	1	2	3	4	5	6
17. The opportunities in this community help ensure that these students will learn.	1	2	3	4	5	6
18. Students here just aren't motivated to learn.	1	2	3	4	5	6
19. Learning is more difficult at this school because students are worried about their safety.	1	2	3	4	5	6
20. Teachers here need more training to know how to deal with these students.	1	2	3	4	5	6
21. Teachers in this school truly believe every child can learn.	1	2	3	4	5	6

APPENDIX B

2001-2002 Connectors Saturday Workshop Participation

School	Principal Connector	Assistant Principal Connector	Number of Teacher Connectors	Total Number of Connectors	Saturday Workshops Sept 2001 – May 2002
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

APPENDIX C

In-School workshops on monthly instructional strategy

[illegible]

APPENDIX D

Online Reporting of In-School Weekly Connections

The ratio of the total possible number of teacher connections each month to the total actual number of teacher connections each month

Schools	No. of Connectors	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June
1.											
2.											
3.											
4.											
5.											
6.											
7.											
8.											
9.											
10.											

Total Possible Connections:

Total Number of Teacher Connectors x Total Days available for Connecting

Total Actual Connections:

Total Teacher Connectors x Total Actual online connection entries

VITA

CARLA E. ELLIS

1989	B.S. Business Administration, Boston University Boston, Massachusetts
1990-1992	Peace Corps Volunteer, Kenya
1993-1995	Teacher, Chicago Public Schools Chicago, Illinois
1995	M.Ed., Elementary Teaching, DePaul University Chicago, Illinois
1995-1997	State Director, Department of Education St. Thomas, US Virgin Islands
1997-2004	Associate Director, Center for Urban Education Chicago, Illinois
2004-2005	Principal in Residence, New Leaders for New Schools Chicago, Illinois
2005	M.Ed., School Administration and Leadership, National Louis University, Chicago, Illinois
2005-2006	Founding Principal, DuSable Leadership Academy Charter School Chicago, Illinois
2006-2009	Regional Director/Superintendent, Lighthouse Academies NW Indiana and Chicago, Illinois
2010	Country Director, US Peace Corps
2011	Ed.D., Curriculum Studies, DePaul University Chicago, Illinois